

REMARKS

The claims have been amended to improve clarity in response to rejections under 35 U.S.C. § 112, 2nd paragraph. Furthermore, claim 38 has been incorporated into claim 35. Non-elected claims 1-34 and 47 have been canceled. Applicants reserve the right to pursue these claims in one or more divisional applications. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 35, 36, 42, 43, 45, and 46 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This ground of rejection is moot with regards to claims 45 and 46 which have been canceled.

Claim 35 has been amended to recite "...in an amount by mol two times or more ~~larger than~~ that of scyllo-inositol dissolved in the liquid mixture...". Accordingly, the claim now specifies that the units of the amount are "mol" and the phrase "larger than" has been deleted.

The amendment to claim 35 provides antecedent basis for claim 36. In addition, claim 36 has been amended to "...the boric acid and metal salt to be added is ~~not less than twice~~ are two to three times the amount by mol..." to improve clarity.

Claims 40-41 have been amended to improve clarity.

Claim 42 has been amended to "...and the ethanol is added in a volume 0.3 to 3 times ~~larger~~ the volume of the acidic solution or acidic suspension, or the methanol is added in a volume 0.3 to 5 times ~~larger, than that~~ the volume of the acidic solution or acidic suspension". Claim 43 has been similarly amended.

In view of Applicants' amendments, reconsideration and withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 35-43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Merck (DE 3405663, published August 22, 1985; machine translation provided) in view of Weissbach (Journal of Organic Chemistry, 1958, vol 23: 329-330). Technical Bulletin AL-142 is provided as evidence of the composition of Amberlite MB-3 resin.

Merck (DE 3405663) discloses a method of obtaining scyllo-inositol comprising oxidizing myo-inositol with a platinum catalyst to thereby obtain myo inosose (also called scyllo-inosose), and subjecting the myo inosose to esterification followed by reduction and hydrolysis.

In this method, boric acid is formed when the esterified myo inosose is reduced with sodium borohydride. By removing boric acid, purified scyllo-inositol is obtained. Merck discloses that the reaction mixture is made acidic with 2N hydrochloric acid and methanol is repeatedly added therein, followed by azeotropy (evaporation) to thereby remove boric acid together with acetic acid that is derived from the protection group of myo inosose.

In contrast, the first step of the method of the presently claimed invention is the step of "forming a scyllo-inositol/boric acid complex by adding boric acid and a metal salt into a liquid mixture containing scyllo-inositol and neutral sugar other than scyllo-inositol" (present claim 35).

Merck does not teach or suggest a liquid mixture containing scyllo-inositol and a neutral sugar other than scyllo-inositol. The present invention is characterized in that scyllo-inositol is efficiently separated from the mixture containing scyllo-inositol and neutral sugar other than scyllo-inositol by forming a scyllo-inositol/boric acid complex. In contrast, Merck does not teach or suggest separation of scyllo-inositol from a mixture containing scyllo-inositol and neutral sugar other than scyllo-inositol.

Moreover, in the method of Merck, boric acid is not added into the mixture. Merck only describes that boric acid is formed as an intermediate which should be removed.

Moreover, Merck does not teach adding a metal salt into the liquid mixture containing scyllo-inositol and neutral sugar other than scyllo-inositol to form the "scyllo-inositol/boric acid complex...wherein the metal salt to be added is one or more kinds of metal salts selected from the group consisting of NaCl, NaHCO₃, Na₂CO₃, Na₂SO₄, NaHSO₄, NaH₂PO₄, Na₂HPO₄, Na₃PO₄,

borax, KCl, KHCO₃, K₂CO₃, K₂SO₄, KHSO₄, KH₂PO₄, K₂HPO₄, K₃PO₄, MgCl₂, MgCO₃, and MgSO₄” (claim 35 as amended). Although the Office Action states that Merck teaches “the conversion” performed in a basic environment in the presence of an added metal salt, “the conversion” means the esterification step before scyllo-inositol is actually generated (see page 1, paragraph 8 of translation) and not formation of a scyllo-inositol /boric acid complex. Accordingly, Merck does not teach or suggest addition of boric acid and a metal salt to form a scyllo-inositol/boric acid complex as claimed.

Furthermore, although Merck discloses a cation exchange column, the column is used for desalting the scyllo-inositol solution, not for separating the scyllo-inositol from boric acid as in the present invention.

Weissbach does not correct the deficiencies of Merck. Weissbach teaches a method of obtaining scyllo-inositol by : filtrating the complex as a precipitate; dissolving the precipitate in diluted sulfuric acid; adding thereto methanol to subject the dissolved precipitate to azeotropy with boric acid; removing the boric acid; and desalting the remaining solution using an ion exchange resin. This reference is described in paragraph 0013 in the Background section of the present specification.

However, in the method of Weissbach, the ratio of the generated scyllo-inositol /boric acid complex is low, and significant scyllo-inositol remains in the solution. Therefore, the complex and components including the remaining scyllo-inositol the solution must be separated from each other and scyllo-inositol obtained from each. Furthermore, a large amount of organic solvent was required to obtain scyllo-inositol from the complex in the method disclosed by Weissbach.

The method of the presently claimed invention is based upon the inventors’ finding that the scyllo-inositol/boric acid complex is efficiently formed by adding boric acid and a metal salt selected from NaCl, NaHCO₃, Na₂CO₃, Na₂SO₄, NaHSO₄, NaH₂PO₄, Na₂HPO₄, Na₃PO₄, borax, KCl, KHCO₃, K₂CO₃, K₂SO₄, KHSO₄, KH₂PO₄, K₂HPO₄, K₃PO₄, MgCl₂, MgCO₃, and MgSO₄ and thereby scyllo-inositol is efficiently separated from the mixture containing scyllo-inositol and neutral sugar other than scyllo-inositol.

Neither of the cited documents discloses the step of adding boric acid and a metal salt as set forth in amended claim 35 into a liquid mixture containing scyllo-inositol and neutral sugar

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other than scyllo-inositol. Accordingly the cited references taken as a whole do not teach all of the elements of the claimed invention.

In view of Applicants' amendments and arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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